



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,723	09/09/2003	Thomas J. Sabourin	133282UL (MHM-14768US01)	2790
23446 7590 05/22/2007 MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661			EXAMINER PATEL, KANJIBHA I B	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 05/22/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/658,723

Applicant(s)

SABOURIN ET AL.

Examiner

Kanji Patel

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,4,10-12 and 14-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,10-12 and 14-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

***Response to Amendment***

1. Applicant's amendment filed 3/02/07 has been entered and made of record.

With this amendment, claims 2, 5-9, 13 are cancelled. Claims 21-32 are added new. Claims 1, 3-4, 10-12 and 14-32 are pending in the application.

***Response to Arguments***

2. Applicant's arguments, see pages 8-9 of the remarks, filed 3/2/07, with respect to the rejection(s) of claim(s) 1-18 and 20 under 35 USC 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Cai et al. (US 6,790,181 B2) and Greppi et al. (US 6,951,542 B2).

Also the indicated allowability of claim 19 is withdrawn in view of the newly discovered reference(s) to Cai et al. (US 6,790,181 B2) and Greppi et al. (US 6,951,542 B2). Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1, 4, 10-12, 14-20, 22-23, 25-28 and 30-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Greppi. et al. (US 6,951,542 B2).**

**For claim 1**, Greppi et al. disclose a method for generating images using an ultrasound device (Figures 1-2), the method comprising:

storing a plurality of frames (column 10, lines 30-34; at least two images provide a plurality of frames);

generating at least one image output from said plurality of frames (column 10, lines 30-46; column 13 line 67 to column 14 line 9), wherein said at least one image output comprises a compounded image and a non-compounded image (three individual, separate images may be visualized in display 10 which reads on a non-compounded images); and

displaying said at least one image output (column 10, lines 30-46).

**For claims 14-15 and 32**, these claims are similarly analyzed and rejected as claim 1 above.

**For claim 4**, Greppi et al. disclose the method, wherein a less compounded image output is generated from less than all of said plurality of frames (column 10, lines 41-46).

**For claims 10 and 26**, Greppi et al. inherently disclose the method, wherein displaying said at least one image output comprises displaying said compounded and non-compounded images simultaneously (column 10, lines 30-46).

**For claims 11 and 27**, Greppi et al. disclose the method wherein at least one of said compounded and non-compounded images are generated in real time (column 13, lines 35-43; column 1, lines 23-28).

**For claims 12 and 28,** Greppi et al. inherently disclose the method, wherein displaying, said at least one image output comprises displaying said compounded and non-compounded images sequentially (column 10, lines 30-46).

**For claim 16,** Greppi et al. disclose the system, wherein said at least one processing device comprises at least a compound processing device (CPU 5 in combination with combining unit 9 in Figure 1).

**For claim 17,** Greppi et al. disclose the system, wherein said at least one processing device comprises at least a non-compound processing device (column 10, lines 35-41).

**For claim 18,** Greppi et al. inherently provide a switch coupled to said memory and said at least one processing device (column 10, lines 30-35; selection of different modes).

**For claim 19,** Greppi et al. disclose a storage device (6) coupled to said memory (11), wherein said storage device is adapted to receive and at least one of a recall command (column 5, lines 46-50) and a store command (CPU 5 provides commands).

**For claim 20,** Greppi et al. disclose the system, wherein said memory may accept input from a user (column 4, lines 53-54).

**For claims 22 and 30,** Greppi et al. disclose the method, further including storing at least one of said compounded and non-compounded images (column 10, lines 30-34).

Art Unit: 2624

**For claims 23 and 31**, Greppi et al. disclose the method, further including recalling (column 5, lines 46-50) at least one of said compounded and non-compounded images.

**For claim 25**, Greppi et al. disclose the method, wherein a less compounded image output is generated from less than all of said plurality of frames (column 10, lines 41-46).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 3, 21, 24 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Greppi et al. (US 6,951,542 B2) as applied to above claims and further in view of Cai et al. (US 6,790,181 B2).

**For claims 3 and 24,** Greppi do not clearly disclose that at least two frames of the plurality of frames are acquired at different geometries. However, in an analogous art, Cai et al. disclose an overlapped scanning for multidirectional compounding of ultrasound images comprising at least two frames of the plurality of frames are acquired at different geometries (see at least blocks 30 and 32 in Figure 2 provide two frames at different geometries; abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Greppi et al. by incorporating at least two frames of the plurality of frames acquiring at different geometries as taught by Cai et al because doing so will provide benefits of spatial compounding component frames associated with different steering angles without having to apply filtering to reduce artifacts as mentioned by Cai et al. at column 1, lines 60-63.

**For claims 21 and 29,** Greppi et al. do not clearly disclose that compounded image is a spatially compounded image. However, in an analogous art, Cai et al. disclose an overlapped scanning for multidirectional compounding of ultrasound images comprising a spatially compounded image (see at least abstract). ). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Greppi et al. by incorporating spatially compounded images as taught by Cai et al. because such a modification will provide compounding of component frames of data associated with different steering angles to reduce speckle as shown by Cai et al. at column 1, lines 8-11.

### **Contact Information**

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kanji Patel whose telephone number is (571) 272-7454. The examiner can normally be reached on Monday to Thursday from 8 a.m. to 6:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lillis Eileen can be reached on (571) 272-6928 The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kanji Patel  
Art Unit 2624  
5/11/07



**KANJIBHAI PATEL**  
**PRIMARY EXAMINER**